

## ABSTRACT OF THE DISCLOSURE

The present invention is for the caching of active computing environments. According to one or more embodiments of the present invention a compute capsule (or capsule) is provided. A capsule encapsulates an active computing environment. An active computing environment comprises one or more processes and the complete state necessary for the execution of those processes. To provide this encapsulation, an interface between component modules of the operating system is provided. In one embodiment, this interface has two complementary actions: export state and import state. When the export state action is invoked for a particular resource object, the appropriate module responds with all the internal kernel state associated with the object. Conversely, when the import state action is invoked with the state information provided by an export state action, it recreates the exact state of the resource object. Thus, the present invention records the full and complete state of a set of processes (in a capsule) and caches both the state and the processes. This, in turn, provides the ability to move capsules to a new machine or to suspended them in stable storage, and then restore them to the running state as if there had been no disruption.